^{195}Pt(p,2nγ) 1977Pa20

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 177, 1 (2021)	3-Sep-2021

Also includes ^{194}Pt(d,2nγ) from 1975Ya14.

1977Pa20: E=12-20 MeV proton beams were produced from the 90-cm MC-20 cyclotron at University of Jyvaskyla. Target was 11 mg/cm^2 97.3% enriched ^{195}Pt. γ rays were detected with Ge(Li) and HPGe detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma(\theta)$, γ(t). Deduced levels, $T_{1/2}$. 1977Pa20 also measured conversion electrons from decays of ^{194}Au isomers using a cooled silicon surface-barrier detector and deduced conversion coefficients and γ-ray multipolarities. See ^{194}Au IT decay for more details. 1977Pa20 also report Iγ data from ^{194}Pt(p,nγ).

Other reactions:

1975Ya14: ^{194}Pt(d,2nγ) E=11, 13, 15 MeV deuteron beams were produced from ANL accelerator. Natural Pt target. γ rays were detected with Ge detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, γ(t). Deduced levels, $T_{1/2}$ from decay of the isomers. See ^{194}Au IT decay for more details.

All data are from 1977Pa20, unless otherwise noted.

^{194}Au Levels

A tentative level proposed by 1977Pa20 at 804 keV is discarded here as 1977Pa20 cited 1975La21 work for observing 365γ-194γ coincidence, but 1975La21 assigned that coincidence in ^{192}Au, not ^{194}Au.

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	Comments
0.0	1$^-$		
35.19 *7*	(2)$^-$		
80.51 *10*	(3)$^-$		
107.4 *5*	(5$^+$)	600 ms *8*	$T_{1/2}$: from γ(t) and pulsed beam (1975Ya14).
244.6 *6*	(7$^+$)	2.6 ns *2*	
278.2 *6*	(6$^+$)	1.1 ns *4*	
406.8 *6*	(8$^+$)	2.9 ns *4*	
439.4 *6*	(9$^+$)		
475.8 *9*	(11$^-$)	420 ms *10*	$T_{1/2}$: from γ(t) and pulsed beam (1975Ya14).
535.7 *6*	(9$^+$)		
609.1 *6*	(9$^+$)		
720.0 *6*	(9)		

[†] From a least-squares fit to γ-ray energies.
[‡] From Adopted Levels.
[#] From γ(t) in 1977Pa20, unless otherwise noted.

γ(^{194}Au)

Eγ	Iγ[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
(26.9 *5*)	<0.3	107.4	(5$^+$)	80.51	(3)$^-$		Eγ: from ce data (1977Pa20). Mult.: from α(L)exp>2400 (1977Pa20).
(33.6)		278.2	(6$^+$)	244.6	(7$^+$)		Eγ: not seen in 1977Pa20; energy from level-energy difference.
35.19 *7*	31 *5*	35.19	(2)$^-$	0.0	1$^-$		
45.32 *7*	63 *5*	80.51	(3)$^-$	35.19	(2)$^-$		
(69.0 *7*)	<10	475.8	(11$^-$)	406.8	(8$^+$)	[E3]	Eγ: from ce data (1977Pa20).
[x]82.63 *12*	5.6 *12*						
[x]86.57 *12*	3.5 *10*						
[x]93.65 *12*	5.5 *10*						γ(t) gives 3.7 ns *7* (1977Pa20). A$_2$=+0.28 *7*.
[x]96.73 *10*	17 *2*						

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^{195}Pt(p,2nγ) 1977Pa20 (continued)

γ(^{194}Au) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
[x]97.72 *12*	2.3 *5*					
[x]111.67 *15*	8.8 *15*					
[x]119.43 *10*	21 *2*					A_2=+0.26 *2*
[x]127.9 *2*	16 *4*					
128.58 *10*	25 *4*	406.8	(8$^+$)	278.2	(6$^+$)	A_2≈+0.08
[x]133.43 *15*	7.5 *15*					
137.16 *10*	100	244.6	(7$^+$)	107.4	(5$^+$)	A_2=+0.15 *2*; A_4=−0.07 *3*
[x]138.87 *12*	8 *2*					
[x]144.31 *15*	2.0 *6*					
[x]145.39 *15*	2.9 *6*					
162.22 *12*	9.0 *10*	406.8	(8$^+$)	244.6	(7$^+$)	A_2=−0.35 *7*
[x]166.55[‡] *18*	10.3[‡] *15*					
[x]169.22 *10*	56 *5*					
170.78 *10*	82 *6*	278.2	(6$^+$)	107.4	(5$^+$)	A_2=−0.28 *4*
[x]172.27 *15*	22 *6*					
[x]177.29 *18*	7 *2*					
[x]183.59 *12*	7.2 *10*					
194.83[‡] *12*	19.3[‡] *16*	439.4	(9$^+$)	244.6	(7$^+$)	A_2=+0.28 *5*
[x]200.34[#] *18*	5.8[#] *15*					
[x]207.35[#] *15*	≈9[#]					
[x]211.52[#] *15*	10[#] *3*					
[x]219.32[#] *16*	13[#] *3*					
[x]220.76 *18*	5.1 *12*					
[x]223.9 *2*	3.8 *12*					
[x]225.1 *2*	4.3 *13*					
[x]239.4[#] *2*	13[#] *2*					
[x]245.36 *16*	12 *2*					
[x]287.06[#] *18*	≈25[#]					
291.09 *15*	17 *2*	535.7	(9$^+$)	244.6	(7$^+$)	A_2=+0.31 *6*; A_4=+0.05 *9*
[x]298.72 *15*	15 *2*					
[x]310.2 *2*	8 *2*					
[x]312.0 *2*	9 *2*					
313.2 *2*	8 *2*	720.0	(9)	406.8	(8$^+$)	A_2=−0.35 *5*; A_4=+0.10 *7*
[x]325.93 *16*	11 *2*					
[x]330.15 *18*	8 *2*					
[x]338.64 *16*	24 *3*					
[x]344.02 *18*	15 *2*					
[x]355.67 *15*	67 *6*					
364.54 *18*	12 *3*	609.1	(9$^+$)	244.6	(7$^+$)	A_2=+0.30 *2*; A_4=−0.10 *3*
[x]368.16[#] *18*	≈15[#]					
[x]387.75 *18*	≈8					
[x]394.74[#] *18*	12[#] *3*					
[x]403.5[‡] *4*	12[‡] *4*					
[x]418.6[#] *3*	15[#] *3*					
[x]441.6[#] *3*	≈15[#]					
[x]464.0 *4*	10 *2*					
[x]473.9 *3*	7 *2*					
[x]478.9 *4*	10 *2*					
[x]482.3[#] *2*	43[#] *8*					
[x]486.7 *3*	9 *2*					
[x]525.1 *2*	18 *3*					
[x]547.4 *5*	17 *4*					
[x]562.5[#] *5*	19[#] *4*					

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^{195}Pt(p,2nγ) 1977Pa20 (continued)

$\gamma(^{194}Au)$ (continued)

† Relative intensity with respect to I(137γ)=100, measured at θ=125° (1977Pa20).
‡ Complex peak (1977Pa20).
# Complex peak, intensity corrected for contributions from other nuclides (1977Pa20).
x γ ray not placed in level scheme.

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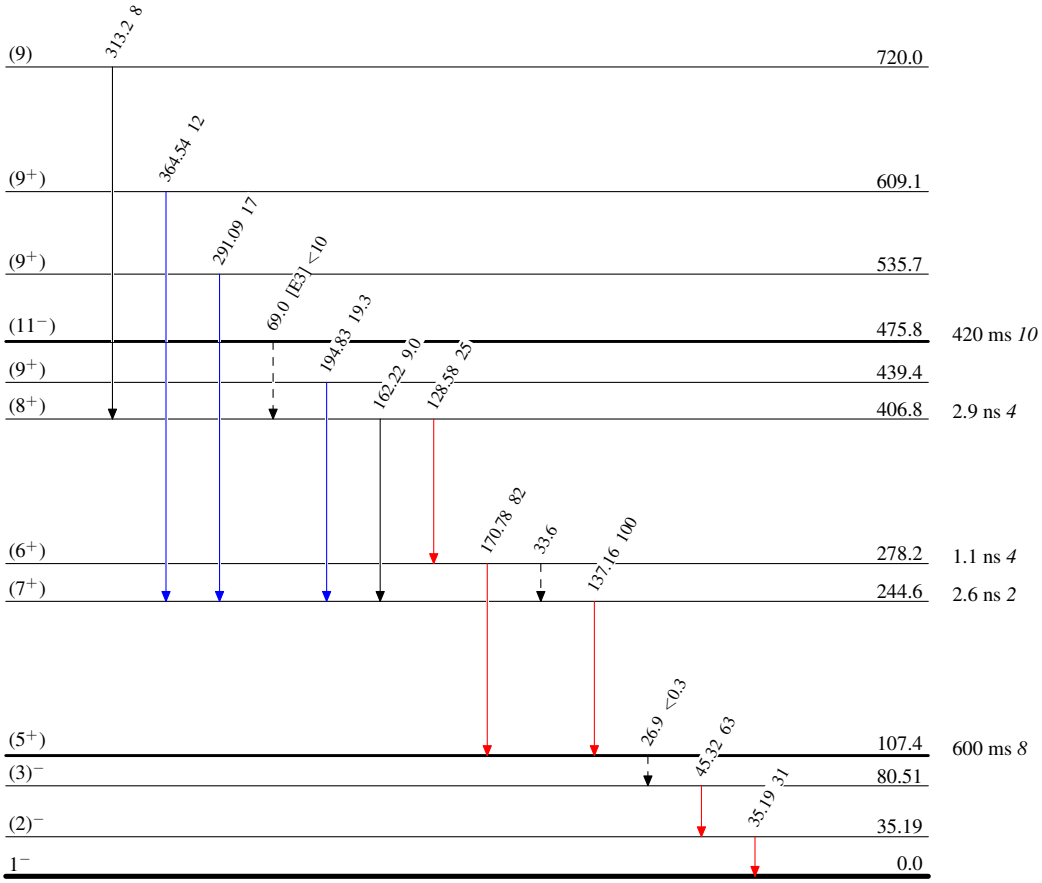
Level Scheme

Intensities: Relative I_γ

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{194}_{79}Au_{115}$